

Records of northern waterbirds in the Barkly wetlands, Northern Territory, 1993-2002

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Abstract

Nine species of waterbirds that principally occur in seaward-draining catchments of the Northern Territory were recorded in endorheic catchments of the Barkly Tableland, Mitchell Grass Downs bioregion, following major floods in 1993 and 2001. The migratory Garganey *Anas querquedula*, Swinhoe's Snipe *Gallinago megala* and Oriental Reed-Warbler *Acrocephalus orientalis* were observed in small numbers and White-winged Black Tern *Chlidonias leucopterus* in moderate numbers. Green Pygmy-goose *Nettion pulchellus*, Pied Heron *Ardea picata* and Black-necked Stork *Ephippiorhynchus asiaticus* were recorded in small numbers and Wandering Whistling-Duck *Dendrocygna arcuata* and Cattle Egret *Ardea ibis* in moderate numbers. Black-necked Stork probably bred in at least one wetland, a vast Coolibah swamp. Some of the nine species may have been colonists at these inland wetlands and their possible breeding status should be monitored in future surveys, others were most likely vagrants.

Introduction

During 1991-5 and 2000-2, temporary wetlands of the Barkly Tableland - the 'Barkly wetlands' - in the Mitchell Grass Downs bioregion (Environment Australia 2002a) were extensively inundated. The largest floods were early in 1993 (Jaensch 1994) and 2001. The principal wetlands, Tarrabool Lake, Lake Woods and Lake Sylvester, provided vast areas of open lake, wooded swamp, shrub swamp, grass/forb swamp and bare muddy shores as waterbird habitat.

The author and associates conducted 10 surveys of the Barkly wetlands on ground, by boat and/or by helicopter during 1993-2002: five in 1993; two in 1994; three in 1995; one in 2001; and one in 2002 (Jaensch 1994, Jaensch & Bellchambers 1997, R. Jaensch unpublished data). As a result, records of several waterbird species were obtained for the first time from the Barkly wetlands or added substantially to knowledge on occurrence, habitat use and/or breeding (Jaensch 2002a, b). This paper summarises the records of waterbird species that normally occur in seaward-draining, northern catchments of the Northern Territory.

Wandering Whistling-Duck *Dendrocygna arcuata*

Storr (1977) and Blakers *et al.* (1984) provide no records of Wandering Whistling-Duck from the Barkly wetlands. However, this waterbird is highly dispersive with vagrants reaching south-western and south-eastern Australia from the far north and east of Australia (Marchant & Higgins 1990).

There are six records of Wandering Whistling-Duck from the Barkly wetlands in the fauna database of the Parks & Wildlife Commission of the Northern Territory (A. Fisher pers. comm., August 2002) for the period 1982-91; another 13 records were obtained during 1993-2002. Most (15) of the records are from the Wet season (December-April). The species was recorded from more wetlands, and in larger numbers, in 2001-2 than in 1993-5 despite far fewer surveys. The highest counts from each major wetland are listed in Table 1 the location of major wetlands is shown in Fig. 1).

Where recorded in inundated woodland of Coolibah (presumed to be Barkly Coolibah *Eucalyptus barkhyensis*) or Cooba *Acacia stenophylla*, the Wandering-Whistling-Ducks were not closely associated with other ducks. At beach, spit or bank roosting sites they were always associated with large numbers (up to 8000) of Plumed Whistling-Duck. It is conceivable that mixed flocks of these species travelled to the Barkly wetlands from northern parts of the Territory.

The records show that Wandering-Whistling-Duck is a regular visitor to the Barkly wetlands. All of the high counts occurred when the wetlands were full or with more than 10 000 ha of water.

Table 1. Highest counts of Wandering Whistling-Duck, Barkly wetlands, 1993-2002. 'Eva Downs Swamp' is an unnamed wetland at the terminus of Cherub Creek..

Wetland (sector)	Habitat	Date	Count
Corella Lake (N)	Sand & gravel beach/chenier	6 Jun 2001	960
Lake de Burgh (N)	Muddy spit on drying shore	17 Dec 1993	415
Lake Sylvester (E)	Delta channels of Brunette Creek	13 Apr 2002	200
Tarrabool Lake (N)	Sand & gravel beach/chenier	29 Mar 1994	46
Lake Woods (W)	Coolibah wooded swamp	10 Apr 2002	40
Eva Downs Swamp	Cooba wooded swamp	6 Jun 2001	40

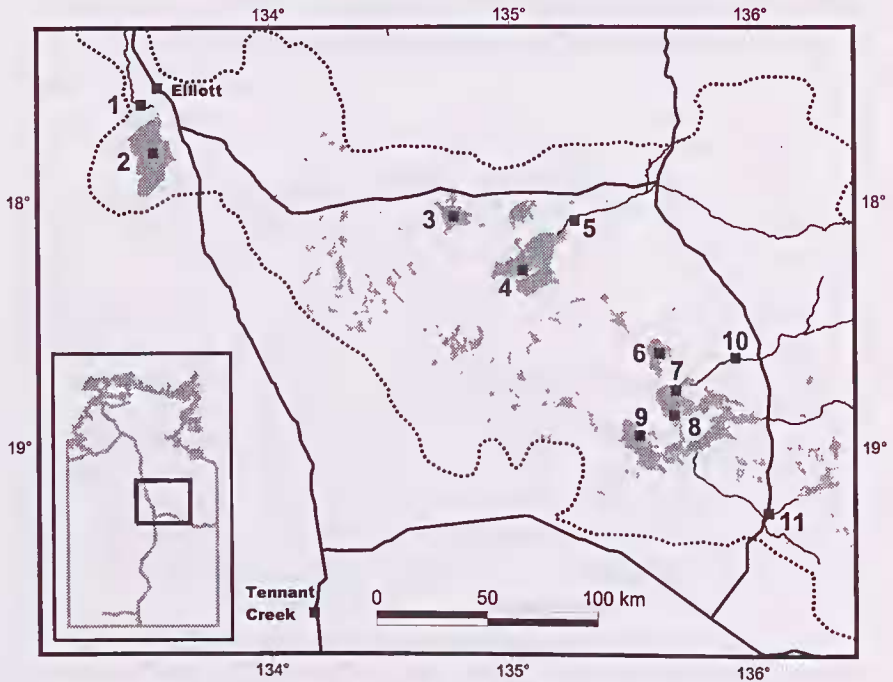


Figure 1. Locations on the Barkly Tableland mentioned in the text: 1, Longreach Waterhole; 2, Lake Woods; 3, Eva Downs Swamp; 4, Tarrabool Lake; 5, Cresswell Ck; 6, Corella Lake; 7, Big Hole waterhole; 8, Lake Sylvester; 9, Lake de Burgh; 10, Brunette Downs homestead; 11, Upper Amazon lagoon. Shaded areas are subject to periodic inundation, although some lakes (particularly the Tarrabool and Sylvester complexes) may become larger than shown here. The boundary of the Mitchell Grass Downs bioregion is shown by the dotted line.

Green Pygmy-goose *Nettapus pulchellus*

Before the 1993-2002 surveys, only one record of Green Pygmy-goose in the Mitchell Grass Downs had been published (Blakers *et al.* 1984) and an undated record west of Tennant Creek (Storr 1977, Marchant & Higgins 1990, PWCNT fauna database) was the only other Northern Territory record outside the seaward-draining catchments.

On 24 September 1993, a pair of Green Pygmy-goose was observed in the north-western, wooded part of Lake de Burgh ($18^{\circ} 53.1' S$, $135^{\circ} 29.9' E$). Water was 0.3-0.5 m deep and devoid of aquatic plants on the surface. At the time, the receding lake still covered more than 15 000 ha. The pygmy-geese were identified by their dark green or

black backs, upper-wing coverts and primaries, which contrasted strongly with their white secondaries. In size they were smaller than the Grey Teal *Anas gracilis* present and their wing-beats were fast and shallow.

The two pygmy-geese were probably vagrants. Long-distance dispersal of this northern waterbird sometimes occurs and there are records from south-western and south-eastern Australia (Marchant & Higgins 1990).

Garganey *Anas querquedula*

On 18 May 1993, a male Garganey in full breeding plumage was observed in the northern part of Lake Woods (17° 44.4' S, 133° 31.3' E), in a swampy zone more than 1 km wide. The swamp contained shrubs of lignum *Muehlenbeckia florulenta* to 2 m height in water up to 1 m deep, among which the aquatic creeper *Ipomoea ?diamantinensis* grew prolifically, as well as dense thickets of budda pea *Aeschynomene indica* to 3 m in water about 0.5 m deep. This community lay between extensive Coolibah woodland and open lake.

The Garganey was seen in flight at a height of about 20 m; its flight was rapid, at least as fast as that of Hardhead *Aythya australis* with which it flew, and its light grey upper-wing coverts were conspicuous. It was about half the size of a Hardhead and its brown head and chest were in strong contrast to its pale eye-stripe and white central belly.

Individuals or small groups of Garganey, a migrant from Asia, occur in wetlands of the Darwin Coastal bioregion (Environment Australia 2002a), and are reported mainly in the late Dry season and early Wet season (Marchant & Higgins 1990, PWCNT fauna database, R. Jaensch pers. obs.). The Lake Woods bird was undoubtedly a vagrant. A record from Alice Springs in December 1978 (Marchant & Higgins 1990) is the only previous, published record of Garganey from inland Northern Territory. Garganey occasionally travel much farther south, reaching south-western and south-eastern Australia (Storr 1977, Blakers *et al.* 1984). The species is listed as 'Data Deficient' under Northern Territory legislation.

Pied Heron *Ardea picata*

Apart from records in October-November 1993 from the Alice Springs area and unconfirmed records from the Tanami and Great Sandy Deserts, the Pied Heron is not normally recorded outside seaward-draining catchments in the Northern Territory (Storr 1977, Blakers *et al.* 1984, Marchant & Higgins 1990, PWCNT fauna database). Vagrants occasionally reach south-eastern Australia.

Records of Pied Herons in the Barkly wetlands in 1993, 2001 and 2002 are listed in chronological order in Table 2. The 1993 birds were all adults, with a blue-black cap

Table 2. Records of Pied Heron from the Barkly wetlands, 1993-2002.

<i>Wetland (sector)</i>	<i>Habitat</i>	<i>Date</i>	<i>Count</i>
Lake Woods (NE)	Shallow open water & shore	22 Sept 1993	1
Lake de Burgh (N)	Muddy open shore	17 Dec 1993	2
Lake Woods (N) and Longreach Waterhole	Coolibah wooded swamp; inundated mixed woodland fringing the waterhole	30 May 2001, 7 Jun 2001	16
Eva Downs Swamp	Cooba wooded swamp	6 Jun 2001	1
Big Hole waterhole	Inundated mixed woodland fringing the waterhole	6 Jun 2001	8
Big Hole waterhole	Bare gravel beach near end of waterhole	12 Apr 2002	6
Lake de Burgh (N)	Coolibah wooded swamp with mats of aquatic weed	13 Apr 2002	1

and yellow legs. The Pied Herons at Lake de Burgh were discovered in a roost of 8 400 whistling-ducks on a marshy spit and five of the larger White-necked Heron *A. pacifica*, which has no black cap and has grey legs, were nearby for comparison.

Many of the 16 birds observed at Longreach Waterhole in June 2001 were immature, lacking black caps. Some birds at Lake Woods and Eva Downs Swamp in June 2001 were associated with colonies of nesting Great Egret *A. alba* in Cooba wooded swamp. Although no nesting by Pied Heron was confirmed, presence in the colonies and occurrence of immatures lends some support to the possibility that this species bred in the Barkly wetlands in 2001. It remains to be seen if the species establishes a long-term presence in these wetlands as a result of the 1993 and 2001 floods.

Pied Herons were recorded well south and inland of their normal range in eastern Australia during 2000 and 2001, with small groups observed in the Channel Country bioregion (Environment Australia 2002a) following major floods (J. Reid & R. Jaensch unpublished data) and in the Macquarie Marshes, New South Wales (Eades 2001).

Cattle Egret *Ardea ibis*

Cattle Egrets occur and breed in large numbers in the Darwin Coastal bioregion (Storr 1977, Chatto 2000), and vagrants have been reported in the Alice Springs area (Blakers *et al.* 1984, Marchant & Higgins 1990, PWCNT fauna database).

One or two birds were seen at Lake Woods and Lake de Burgh in 1993. More signifi-

cantly, substantial flocks were seen at two Barkly wetlands in the period 10-14 April 2002: 60 and 100 near the south-west side of Lake Woods, and 65 and 70 near the north side of Corella Lake and at nearby Edwards Creek respectively. All of the egrets seen in 2002 were feeding in association with cattle in Annual Verbine *Cullen cinereum* and other meadow vegetation on lake bed that had been inundated in 2001 but that had been dry for many months.

Cattle Egret continues to expand its range in Australia and it is highly likely that the species will establish a long-term presence in the Barkly wetlands and associated meadows, possibly influenced by the 2001 flood.

Black-necked Stork *Ephippiorhynchus asiaticus*

Casual occurrence of Black-necked Storks in the Northern Territory at least as far south as the Mitchell Grass Downs has been previously documented (Storr 1977, Blakers *et al.* 1984). At least 19 records of Black-necked Stork in the Barkly wetlands have been obtained over the past two decades (PWCNT fauna database, Jaensch & Bellchambers 1997, R. Jaensch unpublished data). Storks were recorded at each of the major lakes (Woods, Tarrabool, Corella, Sylvester and de Burgh) and/or associated waterholes. The largest groups were: 12, most of them immature, at South Newcastle Bore (17° 40.6' S, 133° 32.6' E) near the northern limit of Lake Woods, on 10 April 2002; five, all immature, at a small pond near Lake Sylvester on 13 April 2002; and five, at least two of them immature, at a waterhole (18° 13.9' S, 135° 5.0' E) in the channel of Cresswell Creek in the north-east of Tarrabool Lake, on 29 March 94. Immature birds had pale or dull-coloured head and neck and some grey-brown, rather than all black, marks on the white upper-wings.

The age at which adult plumage is attained by Black-necked Stork is not certain but it may take several years (Marchant & Higgins 1990). Thus, some or all of the free-flying immatures seen at the Barkly wetlands during 1993-2002 may have been raised elsewhere, in near-coastal areas, but travelled inland to the Barkly wetlands many months later. Stronger evidence that Black-necked Storks bred locally was obtained on 31 March 1993, when a stork was observed at a nest during an aerial transect survey over the south-western part of Tarrabool Lake. The brief view and survey procedure did not permit determination of nest contents or further investigation of the association between stork and nest. Habitat was extensive Coolibah wooded swamp with water that was at least 1 m deep.

It is possible that Black-necked Stork has established a small persistent population in the Barkly wetlands, aided by the wet periods in 1991-5 and 2000-2 during which local conditions - extensive wooded wetlands and abundant food supply - were probably suitable for breeding. The range of a number of Australian Ciconiiforms has expanded

during the 20th century (Serventy & Whittell 1976, Blakers *et al.* 1984, Marchant & Higgins 1990).

Swinhoe's Snipe *Gallinago megala*

In the Northern Territory, *Gallinago* snipe have been recorded mainly from the Darwin Coastal bioregion and adjacent areas, and exceptionally from the Alice Springs area (PWCNT fauna database). Most records of definite identity are of Swinhoe's Snipe but Pin-tailed Snipe *G. stenura* and Latham's Snipe *G. hardwickii* also occasionally occur (Higgins & Davies 1996).

On 14 December 1993, 26 *Gallinago* snipe were flushed from an area of about 1 ha in swamp on the drying north-eastern side of Lake Woods (17° 45.6' S, 133° 32.8' E). Habitat was open shrubland of Lignum to about 1.5 m height over extensive dense Nardoo *Marsilea* sp., or bare mud. Water depth varied from 0 to 0.3 m due to 'gilgai' hollows in the clay substrate. Similar habitat extended for hundreds of metres in a band around the lake.

On 16 December 1993, two *Gallinago* snipe were flushed from a cluster of mud and stone islets with tussocks of couch grass in the drying north-east part of Lake Sylvester (18° 45.3' S, 135° 38.9' E). Landward of the site was an extensive wet marsh of Rat's Tail Couch *Sporobolus mitchellii* that had been cropped short by cattle. Water was of uneven depth due to gilgai hollows but over several hectares was mostly less than 0.1 m deep. After landing 20 m away, the birds were observed closely through tripod-mounted spotting scopes.

On 4 January 1995, a single *Gallinago* snipe was observed squatting on mud beside a Lignum shrub, then flushed twice, in swamp associated with Two Mile Waterhole on Brunette Creek (18° 39.4' S, 135° 58.5' E). The swamp had dried back a little after recent brief inundation.

On 31 January 1995, a single *Gallinago* snipe was flushed and briefly pursued by helicopter, at South Newcastle Waterhole (17° 38.7' S, 133° 32.4' E). The tree-lined waterhole was almost dry at this point, with water confined to small shallow pools in its floor.

Field identification of *Gallinago* snipe, and separation of *G. megala*, *G. stenura* and *G. hardwickii* in particular, is difficult (Higgins & Davies 1996) and most field identifications without a bird in the hand therefore should be regarded as tentative. However, prior to the Barkly sightings, the author had obtained substantial field experience with each species in Australia - notably with *G. megala* near Darwin over preceding months in 1993 and 1995 - and/or overseas in situations where the identity of the birds had been established by capture or where the other species normally did not occur. Identification of most if not all of the Barkly snipe as *G. megala* was based on that experience

and the following characteristics (Higgins & Davies 1996, pp. 29-30): slight or negligible projection of the toes beyond the folded tip of tail when flying (hence not *G. stenura*); infrequent calling during escape flights (unlike the typically vocal *G. hardwickii*); short (less than 30 m) direct escape flights (unlike typical *G. hardwickii*); and no prominent white trailing edge to the upper-wing (ruling out Common Snipe *G. gallinago* of South-east Asia). Furthermore, the Lake Sylvester snipe (at rest) showed a noticeable protrusion of the tail and vent beyond the folded wing tip, probably longer than typical of *G. stenura* but not to the extent usually conspicuous in *G. hardwickii* (Higgins & Davies 1996).

Swinhoe's Snipe is currently listed as 'Data Deficient' under Northern Territory legislation. Further surveys, especially in the late Dry and early Wet seasons when wetland habitat is least widespread, may provide more information on the (perhaps frequent) occurrence of *Gallinago* snipe in the Barkly wetlands.

White-winged Black Tern *Cblidonias leucopterus*

The White-winged Black Tern is a regular migrant from Asia to the marine and coastal fresh-water wetlands of northern Australia, and to many wetlands in southern Australia, but is relatively uncommon inland in the arid zone (Blakers *et al.* 1984, Higgins & Davies 1996). Generally it is most abundant along the north coast.

Substantial numbers were recorded from several of the Barkly wetlands during 1993-2002: the highest counts are shown in Table 3. In April 2002, the White-winged Black Terns were often in tight flocks of around 100 birds, hawking over water and nearby

Table 3. Highest counts of White-winged Black Tern, Barkly wetlands, 1993-2002.

<i>Wetland (sector)</i>	<i>Habitat</i>	<i>Date</i>	<i>Count</i>
Lake Sylvester (E)	Open shallow water with aquatic weed mat, and adjacent grassland and forb meadows	12-14 Apr 2002	1222
Lake de Burgh (N)	Open shallow water with aquatic weed mat, and bare muddy shore	13 Apr 2002	455
Lake Woods (SW)	Lignum swamp, deeply inundated	11 Apr 2002	100
Upper Amazon Lagoon, Playford River	Open water of waterhole & muddy bare shore	1 Feb 1995	59
Corella Lake (N)	Open shallow water, with aquatic weed mat	13 Apr 2002	20

meadows, and many individuals displayed the diagnostic characters of adults in breeding plumage - fully black chest, head and upper back, in strong contrast to the white upper-wing coverts (Higgins & Davies 1996) - which enabled easy separation from the similar Whiskered Tern *C. hybridus*.

Irruptions of thousands of White-winged Black Terns occur from time to time in Australia, often in association with cyclones (Higgins & Davies 1996). Although large numbers were recorded in the Barkly wetlands in 2002, a similar result was not recorded in other years when lake habitat was extensive. The 22 records to date (PWCNT fauna database, R. Jaensch unpublished data) indicate that the species is a frequent visitor to the Barkly wetlands, mainly in the Wet season (all but 3 records), with infrequent occurrence of large numbers.

Oriental Reed-Warbler *Acrocephalus orientalis*

The Oriental Reed-Warbler (the relevant population was formerly known as Great Reed-Warbler *A. arundinaceus*) breeds in Asia and is infrequently recorded in Australia. There are several records from the Top End of the Northern Territory: from Melville Island, the Darwin area and the Fogg Dam area (McKean 1983, Blakers *et al.* 1984, PWCNT fauna database, R. Jaensch pers. obs.). Identification from Clamorous Reed-Warbler *A. stentoreus* in the field is difficult.

On 4 January 1995, the author heard a reed-warbler calling spasmodically in a shallowly inundated pile of dead *Parkinsonia aculeata*, and later in a live shrub of this woody weed, at a bore on the Barkly Stock Route south-east of Elliott (17° 43.8' S, 133° 42.3' E). The bore's 'turkey nest' dam was full and contained a stand of dense live Cumbungi *Typha* sp. and water lay in broad pools surrounding the dam. The bird remained hidden but its calls were short, with harsh phrases like those of *A. orientalis* rather than the more musical calls of *A. stentoreus*. The calls were consistent with calls of *A. orientalis* learnt by the author while resident in Malaysia during 1989-91 and sometimes heard during the Wet season at Fogg Dam (1993-5), but unlike the familiar calls of *A. stentoreus*. Three birds of another rare Asian migrant, the Barn Swallow *Hirundo rustica* (identified by their dark chest bands), were at this site at the same time; eight were also present on 30 January 1995.

On 5 January 1995, a reed-warbler was detected in thickets of oleander and bougainvillea shrubs in the gardens of Brunette Downs homestead (18° 38.50' S, 135° 56.6' E). First heard at 0730 h, the bird was still calling when revisited at 0900 h. Calls were varied, generally harsh and typical of *A. orientalis*; a brief, weak tape recording was made. The bird readily came closer in response to imitations of its calls and from distances of less than 10 m, thin brown streaks were obvious on the sides of the bird's chest and throat, a character of *A. orientalis* but not of *A. stentoreus* (Pizzey & Knight 1999). Other plumage and soft part characters were broadly similar to those of *A. stentoreus*. An identical bird

was seen, and was calling strongly though less frequently, at the same site on 1 February 1995.

These records indicate occurrence of Oriental Reed-Warbler as a vagrant in the Barkly Tableland region.

Conclusions

The four species - Garganey, Swinhoe's Snipe, Oriental Reed-Warbler and White-winged Black Tern - that migrate from Asia and that were recorded in the Barkly wetlands in the period 1993-2002, are each listed under bilateral treaties with China and/or Japan (CAMBA, JAMBA) and the federal Environment Protection and Biodiversity Conservation Act 1999 (Environment Australia 2002b). The Commonwealth and Northern Territory governments therefore have an obligation to protect these species and their habitats. This may have little real implication in the case of vagrant occurrence but, over time, some vagrant species have become or proved to be regular migrants.

In regard to each of the waterbird species reported above, no immediate threats to their occurrence in the Barkly wetlands are known to the author. Future surveys of waterbirds in these wetlands should include searches for nests of Pied Heron and Black-necked Stork in particular, to ascertain the breeding status of these species in the Mitchell Grass Downs bioregion.

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